

Nutrients in Streamflow of the Mississippi River Basin—Annual Mean Concentrations, Annual Loads, and Temporal Trends in Concentrations and Loads

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Abstract

The U.S. Geological Survey (USGS) is beginning a study to compute annual mean concentrations and annual loads of total nitrogen and total phosphorus, and temporal trends in annual mean concentrations and annual loads of total nitrogen and total phosphorus, at 41 USGS National Stream Quality Accounting Network (NASQAN) gaging stations on the Mississippi River and its major tributaries (Figure 101). The study is in cooperation with the Nutrient Enrichment Committee of the Gulf of Mexico Program. Of the 41 stations, 9 are on the main stem of the Mississippi River and 32 are on 25 major tributaries of the river. Only data collected during the period October 1967–September 1994 will be used because, before October 1967, methods for nitrogen analysis were different from current (1995) methods. Annual constituent loads will be computed by summing daily loads obtained from equations developed by regressing log-transformed daily loads computed from constituent concentrations on log-transformed daily streamflow. Temporal trends in constituent concentrations and loads will be computed using Kendall's Tau test or shown graphically using the smoothing technique LOWESS (Locally Weighted Scatterplot Smoothing).

No Manuscript Submitted.

Presentation Discussion

Dee Lurry (*U.S. Geological Survey—Austin, TX*)

An unidentified audience member commented that Dee Lurry said she intended to correct the concentrations for flow and asked if, both the flow and concentration are seasonal and correlated, but are independent in some aspect, what changes in data could occur by doing a flow adjustment.

Dee Lurry responded that she expects to have flow adjusted residuals. She told the audience member that she had just begun the study, but would like to discuss the results when she obtains the adjusted residuals. She asked the audience member to provide his name and telephone number so that she could contact him when the results are concluded.

She said that her approach was very similar to the approach used in a comparable study on trends along the Gulf Coast. One of her colleagues, David Dunn from Austin, Texas, actually conducted that work, which is currently being reviewed by the committee. She suggested that the audience member, David Dunn, and she, could discuss the topic further.

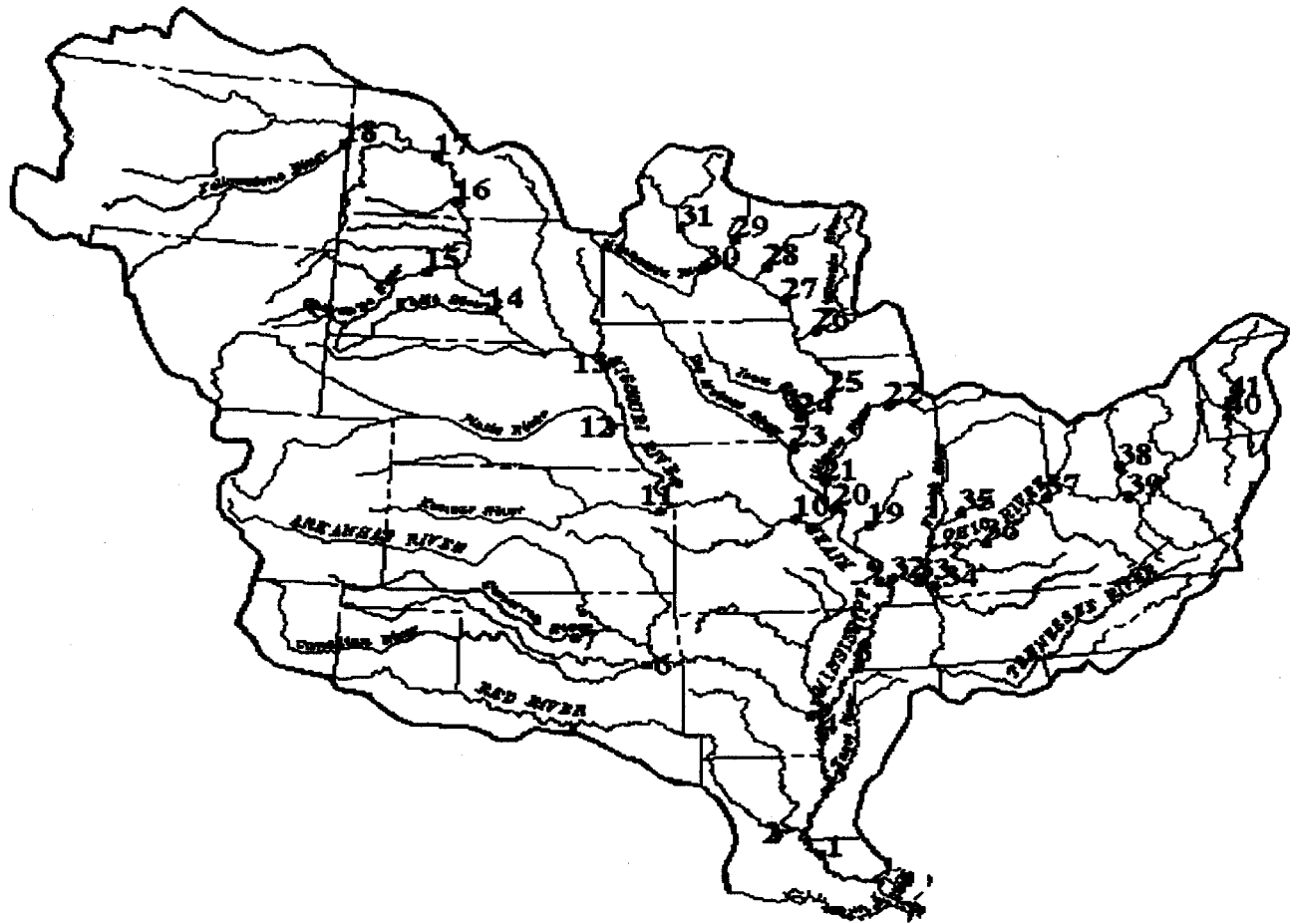


Figure 101.
The Mississippi River and its major tributaries.